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OEL-723/64

MEMORANDUM FOR: Assistant Director for Research and Development

SUBJECT: Recommendation for Research in Recording Techniques

1. Presently available recording techniques do not lend themselves to instrumentation which will satisfy Office of ELINT requirements. This problem is also shared by other organizations of the Agency involved in recording complex signal wave forms. It is believed that adequate progress in this field is dependent upon the development of new techniques or improvement of techniques now in the concept stage.

2. We are aware of a number of studies of recording techniques. These include:

a. A [] study under TSD sponsorship of the use of thermoplastic devices. This approach appears to have some merit, but the technique requires the use of vacuum systems which would present a difficulty in portable field applications.

b. Rotating-head magnetic recording techniques do not appear to be satisfactory because of the transients which occur during switching.

c. OEL sponsored an investigation by [] of a photo optic technique. The results of this investigation were not promising.

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d. [] is presently studying an application of the Kerr effect. The potential of this approach has not been determined.

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3. It appears that a desirable recording system having a frequency response in the order of [] with a dynamic range and signal to noise ratio of [] will not be obtained by clever mechanization of presently established techniques. It is recommended, therefore, that the Office of Research and Development initiate a continuing program in this area. The Office of ELINT will be happy to cooperate by providing further definition of requirements or providing further details of studies which have been conducted in the past.

GEORGE C. MILLER
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Directorate of
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